

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPELLANT(S): Matthew P.J. Baker, et al. EXAMINER: Sivji, Nizar N.  
SERIAL No.: 10/599,858 GROUP: Art Unit 2617  
FILED: October 12, 2006 DATED: March 23, 2011  
TITLE: **ALLOCATION OF ACCESS SLOTS TO  
MOBILE STATIONS IN ORDER TO  
COUNT THE NUMBER OF STATIONS  
INTERESTED IN A MBMS (MULTIMEDIA  
BROADCAST/MULTICAST SERVICE)**

**Mail Stop Appeal Brief – Patents**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Va. 22313-1450

**Confirmation No. 5815**

**BRIEF ON APPEAL UNDER 37 CFR 41.37**

Dear Sirs:

This is an appeal from a Final Office Action dated October 13, 2010 in the above-identified application. This Brief is accompanied by the requisite fees set forth in 37 C.F.R. §41.20 (b)(2).

**I. REAL PARTY IN INTEREST**

The above-identified application was initially assigned, in its entirety, to Koninklijke Philips Electronics N.V. (“KPENV”). Subsequent to this assignment, KPENV transferred by agreement, a 50% (fifty percent) ownership interest in the above-identified application to Sharp Corporation of Osaka, Japan.



## **II. RELATED APPEALS AND INTERFERENCES**

Appellants, Appellants' legal representative and/or the assignee of Appellants' interest in the above-identified application are not aware of any related appeals, interferences or judicial proceedings which may be related to, directly affect, or be directly affected by or have a bearing on, any decision by the Board of Patent Appeals and Interferences in this appeal.

## **III. STATUS OF CLAIMS**

The instant application was originally filed with 24 claims of which 22 claims are pending. Claims 9 and 10 have been cancelled. Claims 1-8 and 11-24 stand finally rejected as set forth in the Final Office Action dated October 13, 2010 (the "Final Office Action"). These rejected claims are the subject of this appeal. An accurate copy of Claims 1-8 and 11-24 is provided in the Claims Appendix.

## **IV. STATUS OF AMENDMENTS**

No amendments were submitted by Appellants subsequent to the Final Office Action. A response to the Final Office Action was submitted by Appellants on December 13, 2010. The Examiner issued an Advisory Action dated December 22, 2010.



## **V. SUMMARY OF CLAIMED SUBJECT MATTER<sup>1</sup>**

The invention relates to a method of operating a radio network, such as UMTS or cdma2000, which comprises at least one primary station (PS), i.e., an access point or base station, and a plurality of secondary stations (SS1, SS2, SS3), i.e., mobile stations. [See page 4, lines 1-17 of the specification and Figure 1] The primary stations determine the level of interest of the users of the secondary stations in a particular service, such as Multimedia Broadcasting and Multicast Services (MBMS), by allocating a respective plurality of access slots in which the secondary stations can transmit an indication of interest. [See page 5, lines 7-24 of the specification and Figure 2] The primary station receives the indication of interest and estimates the level of interest from the number of transmitted indications, for example, whether or not they exceed a threshold value. Depending on the result of the estimation process the primary station selects a particular one of at least two transmission modes for transmitting the service. [See page 7, line 24 to page 8, line 5 of the specification] According to said “approximation counting” of users interested in an MBMS service, the primary station selects a certain transmission mode for the implementation of the service (i.e., a point-to-point or a point-to-multipoint basis). [See page 7, line 24 to page 8, line 5 of the specification and Figure 2]

Independent Claim 1 recites a method of operating a radio network comprising a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3) [Figure 1 and page 4, lines 10-17 of the specification], wherein the primary station determines an estimated level of interest by users of secondary stations in a service by providing a plurality of random access slots [Block 44

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<sup>1</sup> It is respectfully noted that it is not the Appellants' intention that the claimed embodiments of this invention be limited to operation within the example embodiments described in this brief, beyond what is required by the claim language. These examples and their description are provided to facilitate ease of understanding and to comply with the requirements of an appeal brief, without intending that any further interpreted limitations be read into the claims as presented.



of Figure 2] that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations [See page 7, line 6 to page 8, line 5 of the specification], wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on a threshold value [See page 5, lines 7-16 of the specification].

Dependent Claim 6 recites that each access slot of the plurality of random access slots includes a combination of one time slot and one signature [See page 4, line 25 to page 5, line 6 of the specification]. Claim 6 further recites that the primary station maps each of the plurality of random access slots to a different service such that all the secondary stations interested in one service transmit using one of the plurality of random access slots, and in that each combination of one time slot and one signature is contained in not more than one of the plurality of random access slots [See page 5, lines 7-16 of the specification].

Independent Claim 18 recites a radio network [Figure 1] comprising a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3), wherein the primary station (PS) includes means for determining an estimated level of interest by users of secondary stations in a service, the means providing a plurality of random access slots [Block 44 of Figure 2] that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations [See page 7, line 6 to page 8, line 5 of the specification], wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots,



the estimated level of interest based on a threshold value [See page 5, lines 7-16 of the specification].

Dependent Claim 20 recites that each access slot includes a combination of one time slot and one signature [See page 4, line 25 to page 5, line 6 of the specification]. Claim 20 further recites that the primary station (PS) comprises means for mapping each of the plurality of random access slots to a different service such that all the secondary stations interested in one service transmit using one of the plurality of random access slots, and wherein each combination of one time slot and one signature is contained in not more than one of the plurality of random access slots [See page 5, lines 7-16 of the specification].

Independent Claim 23 recites a primary station for use in a radio network comprising at least one primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3) [Figure 1], wherein the primary station (PS) includes means for determining an estimated level of interest by users of secondary stations in a service, the means providing a plurality of random access slots [Block 44 of Figure 2] that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations [See page 7, line 6 to page 8, line 5 of the specification], wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on a threshold value [See page 5, lines 7-16 of the specification].

Independent Claim 24 recites a secondary station for use in a radio network comprising a primary station (PS) and a plurality of the secondary stations (SS1, SS2, SS3) [Figure 1], wherein the primary station (PS) includes means for determining an estimated level of interest by



users of secondary stations in a service, the means providing a plurality of random access slots [Block 44 of Figure 2] that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations [See page 7, line 6 to page 8, line 5 of the specification], wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on a threshold value [See page 5, lines 7-16 of the specification].

#### **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following issues are on appeal:

- A) Claims 1-8, 11-16, and 18-24 stand rejected under 35 U.S.C. 103(a) over Van Heeswyk (U.S. Patent No. 6,765,883) in view of Shinnarajah et al. (U.S. Application No. 2004/0008679) and further in view of Salloum Salazar et al. (U.S. Patent No. 6,700,878).
- B) Claim 17 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Van Heeswyk, Shinnarajah, and Salazar, and further in view of Cooper et al. (U.S. Application No. 2002/0069038).



## VII. ARGUMENT

In the Final Office Action, Claims 1-8, 11-16, and 18-24 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Van Heeswyk (U.S. Patent No. 6,765,883) in view of Shinnarajah et al. (U.S. Application No. 2004/0008679) and further in view of Salloum Salazar et al. (U.S. Patent No. 6,700,878); Claim 17 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Van Heeswyk, Shinnarajah, and Salazar, and further in view of Cooper et al. (U.S. Application No. 2002/0069038). It is respectfully submitted that Claims 1-8 and 11-24 are patentable over Van Heeswyk, Shinnarajah, and Salloum Salazar and that Claim 17 is patentable over Van Heeswyk, Shinnarajah, Salloum Salazar, and Cooper for at least the following reasons.

Claim 1, recites, *inter alia*, as follows:

“...indicating, via a secondary station of the plurality of secondary stations, the **estimated level of interest** by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest **based on at least a threshold value.**” (Emphasis added.)

The applied combination of Van Heeswyk, Shinnarajah, and Salazar fails to disclose and/or suggest at least “...indicating, via a secondary station of the plurality of secondary stations, the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on at least a threshold value,” as recited in independent Claim 1.

At page 4 of the Final Office Action, the Examiner stated that the applied combination of Van Heeswyk and Shinnarajah does not explicitly teach “the estimated level of interest based on at least [a] threshold value.” The Examiner relied on Salazar to cure the deficiencies of Van Heeswyk and Shinnarajah. However, Salazar does not cure the deficiencies of Van Heeswyk



and Shinnarajah.

At page 4 of the Final Office Action, the Examiner relied on Column 4, lines 50-65 of Salazar to teach an “estimated level of interest” feature based on a “threshold value.”

However, Column 4, lines 50-65 of Salazar state:

“A plurality of further outputs of the demodulator 40 provides a strength measure for each of the carriers. This strength measure can e.g. be determined by measuring the amplitude of the IF signal of each of the carriers. It is observed that this amplitude measurements should be performed quickly enough in order to distinguish between the strength of subsequent double slots. A detector 38 is arranged for determining the state of each of the uplink channels. This is done by **monitoring the strength value determined for each carrier in the demodulator 40 and deciding for each time slot whether the strength measure in said time slot exceeds a given threshold value. If the threshold value is exceeded, the channel is provisionally marked as seized.** Otherwise the channel is indicated to be free. This information is passed to the control means 30 which uses it to establish a list of free channels.” (Emphasis added.)

It is not clear where such cited section of Salazar refers to or even implies an estimated level of interest based on a threshold value. There is no indication of conducting an estimate to determine if the number of secondary stations exceeds a threshold value. It is true that Salazar refers to a threshold value. However, Salazar does **not** estimate a level of interest of a number of secondary stations based on such threshold value, as clearly recited in the Claims. Instead, Salazar states that a determination is made as to whether channels are “seized” based on whether a strength measure of a time slot exceeds a threshold. In other words, Salazar is concerned with which channels are “free” or not used based on whether a strength measure exceeds a threshold value. In contrast, the present Claims refer to computing an “estimation” that is adequate for counting the number of secondary users (i.e., level of interest of secondary users), the estimate based on a threshold value. The present Claims clearly do not refer to whether channels are free based on a threshold value.



Thus, the applied combination of Van Heeswyk, Shinnarajah, and Salazar does not teach and/or suggest at least the features recited in the present Claims.

Accordingly, the Board is hereby respectfully requested to reverse the rejection under 35 U.S.C. §103(a) with respect to independent Claims 1 and 24 and the claims be allowed to pass to issue.

Dependent Claims 2-8, 11-16, and 18-23 are allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claims 1 and 24. Accordingly, the Board is hereby respectfully requested to reverse the rejections under 35 U.S.C. §103(a) with respect to dependent Claims 2-8, 11-16, and 18-23 over Van Heeswyk, Shinnarajah, and Salazar and the claims be allowed to pass to issue.

Dependent Claim 17 is allowable over the prior art of record for at least the same reasons presented above for the patentability of independent Claim 1. Cooper does not cure the deficiencies of Van Heeswyk, Shinnarajah, and Salazar. Additionally, dependent Claim 17 contains further distinguishing patentable features.

Accordingly, the Board is hereby respectfully requested to reverse the rejection under 35 U.S.C. §103(a) with respect to dependent Claim 17 over Van Heeswyk, Shinnarajah, Salazar, and Cooper, and the claims be allowed to pass to issue.



In view of the foregoing arguments, Appellants respectfully submit that independent Claims 1-8 and 11-24 and their corresponding dependent claims are patentable over the prior art of record and applicants' admitted prior art, taken alone or in any proper combination.

Respectfully submitted,

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**CLAIMS APPENDIX**

1. A method of operating a radio network, the method comprising:  
providing a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3),  
determining, via the primary station, an estimated level of interest by users of secondary stations  
in a service by providing a plurality of random access slots that are selectively configured for  
permitting a temporary or permanent allocation of a portion of the plurality of random access  
slots based on the estimated level of interest of the users of the secondary stations, and  
indicating, via a secondary station of the plurality of secondary stations, the estimated  
level of interest by transmitting a predetermined signal in a preselected one of the plurality of  
random access slots, the estimated level of interest based on at least a threshold value.
2. The method as claimed in claim 1, wherein the primary station computes the estimated  
level of interest from at least a number of transmitted indications and selects a transmission  
mode of the service in dependence on whether the estimated level of interest is relatively high or  
relatively low.
3. The method as claimed in claim 2, wherein the transmission mode for the relatively  
high level of interest is point-to-multipoint.
4. The method as claimed in claim 2, wherein the transmission mode for the relatively  
low level of interest is point-to-point.



5. The method as claimed in claim 2, wherein the primary station sets the threshold value for determining the transmission mode of the service and, when the number of transmitted indications exceeds the threshold value, the transmission mode for the relatively high level of interest is operated.

6. The method as claimed in claim 1, wherein each access slot of the plurality of random access slots includes a combination of one time slot and one signature, and wherein the primary station maps each of the plurality of random access slots to a different service such that all the secondary stations interested in one service transmit using one of the plurality of random access slots, and in that each combination of one time slot and one signature is contained in not more than one of the plurality of random access slots.

7. The method as claimed in claim 6, wherein each of the plurality of random access slots uses the same signature and in that each random access slot in the plurality of random access slots uses a different time slot.

8. The method as claimed in claim 6, wherein each of the plurality of random access slots uses the same time slot and in that each random access slot in the plurality of random access slots uses a different signature.

9. (Cancelled)

10. (Cancelled)



11. The method as claimed in claim 1, wherein the level of interest is transmitted as spread spectrum signals and a number of indications is estimated by estimating a number of correlation peaks in a given random access time slot.

12. The method as claimed in claim 1, wherein the level of interest is transmitted as spread spectrum signals and a number of indications is estimated by estimating a received energy in a given random access slot.

13. The method as claimed in claim 1, wherein the secondary stations are allocated to a respective one of two or more pluralities of access slots and in that a secondary station of the plurality of secondary stations desiring to transmit an indication of interest, transmits in its allocated plurality of random access slots.

14. The method as claimed in claim 13, wherein when an estimated level of interest exceeds a predetermined level of interest, the primary station instructs the plurality of secondary stations waiting to transmit in their allocated access slot not to transmit.

15. The method as claimed in claim 1, wherein a secondary station of the plurality of secondary stations indicating an interest in the service also indicates a quality level for receiving the service.



16. The method as claimed in claim 15, wherein the primary station transmits a higher quality level of service in a mode different from the transmission of a lower quality level of service.

17. The method as claimed in claim 1, the primary station transmits a basic data stream as a point-to-multipoint transmission and a supplementary data stream for enhancing a quality of the basic data stream as a point-to-point transmission.

18. A radio network comprising:  
a primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3),  
wherein the primary station (PS) includes means for determining an estimated level of interest by users of secondary stations in a service, the means providing a plurality of random access slots that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations,

wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on at least a threshold value.

19. The radio network as claimed in claim 18, further comprising estimating means for computing the estimated level of interest from at least a number of transmitted indications and mode selection means for selecting a transmission mode of the service in dependence on whether the estimated level of interest is relatively high or relatively low.



20. The radio network as claimed in claim 18, wherein each access slot includes a combination of one time slot and one signature, wherein the primary station (PS) comprises means for mapping each of the plurality of random access slots to a different service such that all the secondary stations interested in one service transmit using one of the plurality of random access slots, and wherein each combination of one time slot and one signature is contained in not more than one of the plurality of random access slots.

21. The radio network as claimed in claim 18, further comprising spread spectrum transceiving means and wherein an estimating means is adapted to estimate the level of interest by estimating a number of correlation peaks in a respective random access slot.

22. The radio network as claimed in claim 18, further comprising spread spectrum transceiving means and wherein an estimating means is adapted to estimate the level of interest by estimating a received energy in a respective random access slot.

23. A primary station for use in a radio network comprising:  
at least one primary station (PS) and a plurality of secondary stations (SS1, SS2, SS3),  
wherein the primary station (PS) includes means for determining an estimated level of interest by users of secondary stations in a service, the means providing a plurality of random access slots that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations,



wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on at least a threshold value.

24. A secondary station for use in a radio network comprising:

a primary station (PS) and a plurality of the secondary stations (SS1, SS2, SS3),

wherein the primary station (PS) includes means for determining an estimated level of interest by users of secondary stations in a service, the means providing a plurality of random access slots that are selectively configured for permitting a temporary or permanent allocation of a portion of the plurality of random access slots based on the estimated level of interest of the users of the secondary stations,

wherein a secondary station of the plurality of secondary stations indicates the estimated level of interest by transmitting a predetermined signal in a preselected one of the plurality of random access slots, the estimated level of interest based on at least a threshold value.



**EVIDENCE APPENDIX**

None



**RELATED PROCEEDINGS APPENDIX**

None